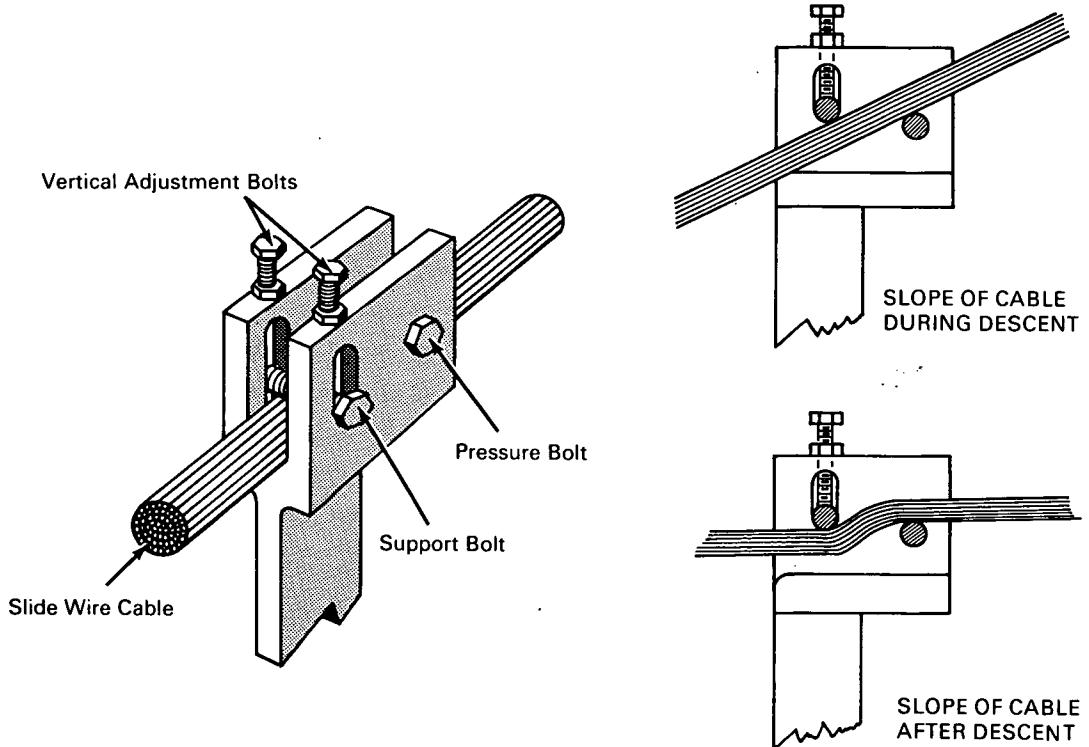


NASA TECH BRIEF



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Emergency Escape System Uses Self-Braking Mechanism on Fixed Cable



The problem:

To design an emergency escape system that incorporates automatic descent and braking for the safe and rapid evacuation of personnel from tall structures. Other escape systems use handbrakes to control descent and braking. Manual operation causes injuries to users because of stopping too soon and piling up other evacuees or not stopping soon enough and hitting the ground terminal.

The solution:

A slide-wire system with a twist level slide device, which is a self-braking mechanism.

How it's done:

Each twist level slide device is attached to a slide wire or fixed cable suspended between the tall structure and an A-frame terminal. Prior to use, the device is retained at the structure with breakaway string.

(continued overleaf)

The twist lever slide device is attached to the slide-wire cable as shown. Before descent, the cable contacts only the support bolt. Clearance between the cable and pressure bolt is set with the vertical adjustment bolts. As the device descends, its angle of suspension remains essentially constant because of the attached load. The slide wire cable has a decreasing angle of slope, and as the slope decreases, the cable eventually contacts the pressure bolt. The resultant twisting of the cable forces the device to a smooth, but rapid, stop.

The initial clearance setting between the cable and the pressure bolt determines the eventual stopping point of the twist lever slide device. Field experimentation will quickly determine proper adjustment bolt settings for stopping at a predetermined point.

To evacuate the structure, each person hooks a personal sling-type harness to one of the twist lever slide devices. The person's weight breaks the string retaining the device, and it descends along the slide wire. The device automatically stops at ground level before reaching the A-frame terminal.

Notes:

1. This system is presently in operation at John F. Kennedy Space Center.
2. The automatic descent and braking features permit evacuation of unconscious or injured personnel.
3. This device could be used on any tall structure that might require emergency evacuation. It could also be used to transfer materials and equipment.
4. Inquiries concerning this invention may be directed to:

Technology Utilization Officer
Kennedy Space Center
Kennedy Space Center, Florida 32899
Reference: B66-10575

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546.

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